

Applicant: Matti Hietaniemi et al.
PCT App. No.: PCT/FI2004/000549
Preliminary Amendment filed March 22, 2006

Claim Listing

1–10. (cancelled)

11. (new) A method for manufacturing a layered paper or board web, comprising the steps of:

delivering thick stock to a paper machine;

diluting the thick stock with tail water of a consistency;

fractionating the diluted thick stock to produce two different stock fractions

comprised of a first stock fraction and a second stock fraction, wherein the first stock fraction contains on average finer material than the second stock fraction, and wherein the second stock fraction contains on average coarser material than the first stock fraction; and

diluting the second stock fraction with dilution water having a consistency that is substantially lower than the consistency of the tail water added into the thick stock before fractionating, wherein the first stock fraction and the diluted second stock fraction are each fed into a headbox, and the first stock fraction is conducted into a surface layer or layers of the paper or board web, and the diluted second stock fraction is conducted into a middle layer or layers of the paper or board web.

12. (new) The method of claim 11, wherein the dilution water has a consistency which is at the most 60 percent of the consistency of the tail water used for diluting the thick stock before fractionating.

13. (new) The method of claim 11, wherein the dilution water is water from fiber recovery, suction flatboxes and/or a press section and/or separately collected fabric conditioning water and/or cleaned tail water.

Applicant: Matti Hietaniemi et al.
PCT App. No.: PCT/FI2004/000549
Preliminary Amendment filed March 22, 2006

14. (new) The method of claim 11, wherein the dilution water is tail water that has been diluted with a water type substantially cleaner than the tail water itself.

15. (new) The method of claim 11, further comprising the step of conducting the second stock fraction into the headbox through a cleaning device, wherein the second stock fraction is diluted before it is fed into said cleaning device.

16. (new) The method of claim 11, wherein the step of fractionating the diluted thick stock to produce two different stock fractions, comprises fractionating the diluted thick stock in centrifugal cleaners.

17. (new) The method of claim 11, wherein the step of fractionating the diluted thick stock to produce two different stock fractions, comprises fractionating the diluted thick stock by screens.

18. (new) The method of claim 11, wherein the step of fractionating the diluted thick stock to produce two different stock fractions, comprises fractionating the diluted thick stock in two or more stages.

19. (new) The method of claim 11, wherein the first stock fraction and the diluted second stock fraction are fed into the same headbox which is a multi-layer headbox, the first stock fraction being used for forming a surface layer of the paper or board web, and the second stock fraction being used for forming a middle layer of the paper or board web.

20. (new) The method of claim 11 wherein the first stock fraction is conducted into at least one headbox used for forming a surface layer of the multi-layer web, and the second stock fraction is conducted into at least one other headbox used for forming a middle layer of the multi-layer web.

Applicant: Matti Hietaniemi et al.
PCT App. No.: PCT/FI2004/000549
Preliminary Amendment filed March 22, 2006

21. (new) A method for manufacturing a layered paper or board web, comprising the steps of:

delivering thick stock to a paper machine;

diluting the thick stock with tail water of a consistency;

fractionating the diluted thick stock to produce two different stock fractions

comprised of a first stock fraction and a second stock fraction, wherein the first stock fraction contains on average finer material than the second stock fraction, and wherein the second stock fraction contains on average coarser material than the first stock fraction;

feeding the first stock fraction into a first headbox and conducting the first stock fraction into a surface layer or layers of the paper or board web;

taking dilution water from a recovery screen, or a spray water recovery, or suction flatboxes, or from a wire pit and extracting solids therefrom in a separate process stage, or from the wire pit and diluting with a cleaner water fraction, said dilution water having a consistency that is substantially lower than the consistency of the tail water added into the thick stock before fractionating; and

diluting the second stock fraction with the dilution water, and then feeding the diluted second stock fraction into the first headbox or a second headbox and conducting the diluted second stock fraction into a middle layer or layers of the paper or board web.

22. (new) The method of claim 21, wherein the step of diluting the second stock fraction with dilution water comprises diluting the second stock fraction with water whose consistency is at the most 60 percent of the consistency of the tail water used for diluting the thick stock before fractionating.

Applicant: Matti Hietaniemi et al.
PCT App. No.: PCT/FI2004/000549
Preliminary Amendment filed March 22, 2006

23. (new) The method of claim 21, wherein the first stock fraction is conducted into at least one layer of a multi-layer headbox used for forming a surface layer of the paper or board web, and the second stock fraction is conducted into at least one other layer of the same multi-layer headbox used for forming a middle layer of the paper or board web.